



(19) JAPANESE PATENT OFFICE (JP)

(12) LAID-OPEN PATENTS GAZETTE (A)

(11) Laid-open patent application no.

H1-145106

(43) Date laid open June 7, 1989

(51) Int. Cl.<sup>4</sup> Identification Internal office

code filing no.

B 28 B 1/38 D-6865-4G

D 06 M 11/00 Z-8521-4L

15/564 7438-4L

Examination request Not requested

Number of inventions 1

(Total of 2 pages [in the original])

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DEC 13 2002  
TC 1700

(54) [Title of the invention] Method for manufacturing  
ceramic fiber cloth

(21) Application no. S62-306639

(22) Filing date December 1, 1987

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### Specification

#### 1. Title of the invention

Method for manufacturing ceramic fiber cloth

#### 2. Scope of the patent claim

A method for manufacturing ceramic fiber cloth in which a ceramic fiber cloth molding is formed by the mixing and agitation of a ceramic powder and a solution of a thermosetting urea resin to form a viscous liquid ceramic, and the sufficient soaking thereof into a fiber cloth to be molding processed, and then heating at high temperature and while a high pressure is simultaneously applied.

#### 3. Detailed description of the invention

The present invention relates not to a conventionally marketed ceramic molding but to a ceramic fiber in which the fiber has been converted to ceramic without loss of the flexibility possessed by the fiber.

Firstly, diammonium phosphate is added, as a flameproofing agent, to a solution of thermosetting urea resin, with liquid methanol alcohol also being added as a diluent. Ceramic powder in powdered form is then dissolved in this solvent to create a viscous liquid raw material. This viscous liquid raw material is sufficiently soaked into the fiber cloth which is to be converted to ceramic, with the excess being removed

using a roller, and the liquid methanol alcohol admixed as a diluent is vaporized by heating in a fixed-temperature drying oven, wherein, after drying, the system is heated at a high temperature under high pressure. Meanwhile, the ceramic powder, which forms the raw material, constitutes a product formed by the recycling of defective product waste material by utilizing the product formed by granulation, using a grinder, of the misshapen or cracked defective products produced by current processes for creating various ceramic products, and the further powdering of this granulated material using a machine for producing powder. The method for producing this ceramic fiber cloth is explained using the diagrams.

Reference numeral 1 in figure 1 is the required fiber cloth for impregnation with the ceramic powder, and since this fiber cloth will be heated to a high temperature, it is preferably made of cotton or hemp and, as flexibility must be imparted thereto, it must be net-like. However, as many uses of the ceramic fiber cloth may be envisaged, it is possible to produce a fiber cloth or the like in which molding processing has been performed on one or both sides of said net-like ceramic fiber cloth.

This cotton or hemp fiber cloth 1 is immersed in a viscous liquid raw material 2, to afford the sufficient

soaking up of the viscous liquid raw material 2. The excess is then removed therefrom using a roller 3, and the methanol alcohol admixed as a diluent is vaporized in a fixed-temperature drying oven 4. By virtue of this, the amount of gas dispersed during molding is decreased, whereby misshaping, tearing and the like during molding can be prevented. After this, high pressure is applied by a hot press 5 simultaneously with heating to a high temperature to produce a ceramic fiber cloth 6.

Figure 2 shows diagrams illustrating the various molded forms of the finished ceramic resin cloth. As an explanation thereof, 7i is a cross-sectional view of a molded product in which the entire surface has been converted to ceramic fiber, and 7A is a perspective view thereof. Next, 8ii is a cross-sectional view of a molded product in which one face has been converted to ceramic fiber, and 8B is a perspective view thereof. 9iii is a cross-sectional view of a molded product in which the inner part has been converted to ceramic fiber, and 9C is a perspective view thereof.

In this way, it is possible to create various ceramic fiber cloths in accordance with use requirements. Additionally, by the alteration of the time, pressure and temperature of the hot press together with the thickness of the fiber cloth which one is attempting to

convert to ceramic and the weaving method of the fiber cloth and the like, a further variety of ceramic fiber cloths can be created. The features of said ceramic fiber cloth are that it does not have the "hard" image of conventional ceramics, it has strength without loss of the flexibility characteristic which fiber cloth possesses, it is easy to cut following molding without fall-out of the ceramic powder occurring, and it has an adhesiveness property and a wide range of uses. Furthermore, it has a heat-retaining effect due to the action of far-infrared radiant heat which ceramics possess, and can be used widely as bedding and outfits for protection against the cold in cold regions, and medicinal effects due to said far-infrared effect can also be envisaged.

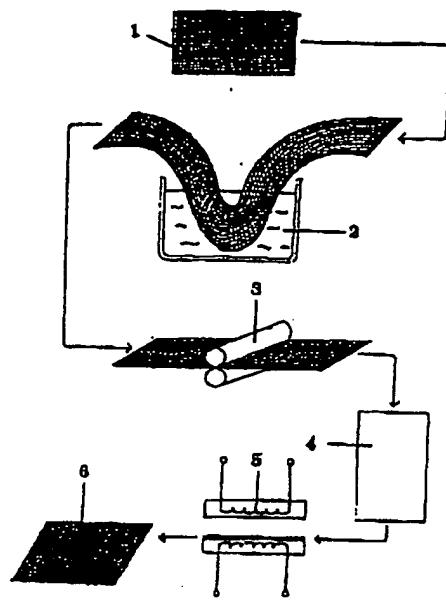
4. Brief description of the diagrams

Figure 1 is a block diagram showing the way of creating the ceramic resin cloth which constitutes the present invention; and

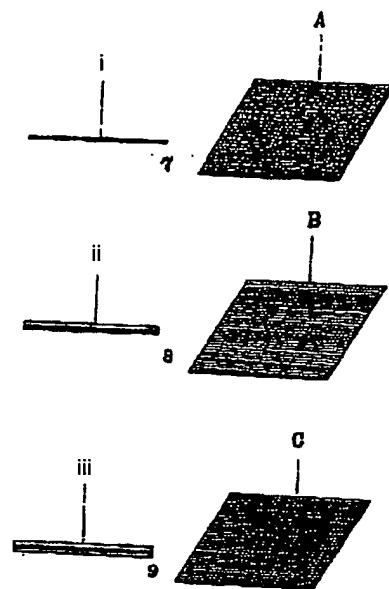
Figure 2 shows various sectional and perspective views of the completed ceramic fiber cloth.

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[Figure 1]



[Figure 2]

# Translator's Report/Comments

Your ref: Thompson-61734

Your order of (date):

15/08/2002

Page/para/line*	Comment
	Japanese proper nouns can have several possible readings; common readings have been chosen throughout.

\* This identification refers to the source text. Please note that the first paragraph is taken to be, where relevant, the end portion of a paragraph starting on the preceding page. Where the paragraph is stated, the line number relates to the particular paragraph. Where no paragraph is stated, the line number refers to the page margin line number.

TRC1 1.7.92